UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 7 1992

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. Mark A. Smith, Attorney
Unocal Corporation
P.O. Box 7600
Los Angeles, California 90051

Dear Mr. Smith:

This letter is in response to your request for a reconsideration of the status of several waste streams generated at Molycorp's lanthanides plant at Mountain Pass, California. I would first like to thank you for hosting the February 13, 1992, EPA site visit to the Molycorp Mountain Pass mine. You and the Molycorp personnel were very helpful and cooperative with my staff during that visit. The information provided to my staff while they were on-site, as well as the additional materials shared with us in subsequent correspondence and phone calls were extremely useful in helping us to understand the complex operations at the plant.

Before responding to your specific requests, I think it important to review with you the Agency's previous decisions regarding the regulatory status of wastes from the extraction, beneficiation, and processing of ores and minerals. As you probably are aware, the Agency made a regulatory determination on July 3, 1986 (51 FR 24497), that all wastes that are uniquely associated with extraction and beneficiation of ores and minerals should remain within the Bevill exemption--that is, the Agency determined that regulation under Subtitle C of these wastes was not warranted. Therefore, the Agency decided that such wastes should be regulated under Subtitle D of the Resource Conservation and Recovery Act (RCRA).

On the other hand, the Agency has determined that relatively few wastes that are uniquely associated with mineral processing are Bevill-exempt. This is because only "high volume and low hazard" wastes are Bevill-exempt and EPA has determined that only a few mineral processing wastes satisfy these criteria. On September 1, 1989 (54 FR 36592), and January 23, 1990 (55 FR 2322), the Agency identified only 20 specific mineral processing waste streams that remain exempt (see enclosure for list of 20 mineral processing Bevill-exempt wastes); all other mineral

processing wastes are subject to Subtitle C (pending the effective date of these rules in the various states) if the wastes either exhibit one or more of the hazardous waste characteristics or are specifically listed.

Therefore, in answering your specific questions, the Agency had to determine: (1) whether the wastes in question are considered to be generated from mineral extraction, beneficiation, or processing operations, and (2) if generated from mineral processing, whether the waste was one of the 20 mineral processing wastes specifically identified by EPA as being a Bevill waste.

With that as background, the Agency's position on the status of the wastes generated by the operations at the Mountain Pass facility was first discussed in my May 14, 1991, letter (enclosed) to Ms. Paula Rasmussen of the California Department of Health Services (DHS). After reviewing the information that you provided to us in support of your request for reconsideration, we have determined that our original decisions concerning the application of 40 CFR 261.4(b)(7) to these waste streams remain valid, with one clarification. Our revised conclusion regarding the classification of the spent lead sand filters is discussed later in this letter.

After careful analysis of Molycorp's process information, we have concluded that two very distinct operations are occurring in the stage of operations that Molycorp refers to as the second "leach" step. During that step, the lanthanide oxide is being digested by hydrochloric acid, and concurrently, the cerium oxide is being leached by hydrochloric acid. In the preamble to EPA's September 1, 1989, final rule (54 FR 36618-19), we defined mineral processing as an operation that: produces materials that are physically and chemically dissimilar to their feedstocks (acid digestion is specifically referred to as an example of this); generates low volume wastes; or uses a roasting/leaching sequence to produce a final or intermediate product that does not undergo further beneficiation or processing steps.

Specifically, during Molycorp's second "leach" step, a significant portion of the feedstock is reacted with a strong acid to form lanthanide chlorides. In this step, the solid lanthanide oxide ore is reacted with hydrochloric acid to produce a liquid product, namely lanthanide chloride. This step also produces lead and iron chloride wastes, which are subsequently reacted with ammonia and sodium hydrogen sulfide, respectively, to form small volumes of solid iron hydroxide and lead sulfide wastes. In our technical judgment, both the product and wastes from this step are physically and chemically dissimilar to the ore. The term "physically and chemically dissimilar" means that the physical structure (e.g., change from solid to a liquid) and chemical properties of the products or wastes are significantly

different from the ore that entered the operation. Furthermore, this step produces low volume wastes. Therefore, according to our regulatory definition, this step is the beginning of mineral processing.

A parallel example of acid digestion is the sulfuric acid attack of phosphate matrix ore. The Agency stated in the preamble to the September 1, 1989, final rule (54 FR 36618-19) that acid digestion of phosphate matrix ore is mineral processing. This acid digestion destroys the physical structure and changes the chemical properties of the phosphate matrix ore. This type of acid digestion is similar to Molycorp's second "leach" step.

In addition, based on observations during EPA's site visit and review of Molycorp's flow diagrams, the second "leach" step also leaches the cerium oxide to produce a higher concentrate cerium oxide product. In this roasting/leaching sequence, the roasting step converts cerium (III) fluorocarbonate to cerium (IV) oxide, which then undergoes leaching with hydrochloric acid to produce a cerium oxide concentrate. With respect to the cerium oxide, the second "leach" step is the leaching portion of a roasting/leaching sequence that produces a final or intermediate product (low grade cerium concentrate) that does not undergo further beneficiation or processing steps. Therefore, according to our regulatory definition, this step is the beginning of mineral processing.

All wastes generated after mineral processing begins (54 FR 36619) are mineral processing wastes, provided they meet the definition of "uniquely associated". The wastes generated during or subsequent to the second "leach" step, which include the iron/lead mixture filter cake, lead backwash sludge, lead filter cake, iron filter cake, and SX-crud resulting from waste cleaned out of solvent extraction units are uniquely associated with mineral processing. Although these wastes are mineral processing wastes, they are not among the 20 permanently exempt mineral processing wastes and, thus, may be subject to RCRA Subtitle C if they are characteristically hazardous or they are listed as hazardous.

As we indicated above, the concept of "uniquely associated" also bears on our determination of the status of selected waste streams from the Mountain Pass facility. This concept has been used consistently by the Agency as a factor in determining which wastes would remain under the Bevill Amendment. (See 45 FR 76619, November 19, 1980 and 54 FR 36616, September 1, 1989.) Wastes not uniquely associated with mineral extraction, beneficiation, or processing include discarded commercial chemicals (such as finished mineral-derived products found to be off-specification), many cleaning wastes (such as a spent commercial solvent that was used in cleaning production vessels) and used lubricating oils. At the Molycorp plant, the pinion gear grease and spilled solvent cleaned up from the floor of the chemical plant are not uniquely associated with mineral extraction, beneficiation, or processing; therefore, as we

concluded in our initial letter to the California DHS, these wastes are not exempt mining or mineral processing wastes. Wastes that are not uniquely associated with mineral extraction, beneficiation, or processing may be subject to RCRA Subtitle C if they are characteristically hazardous or they are listed as hazardous.

However, contrary to our statements in the May 14, 1991, letter, our improved understanding of your operations at Mountain Pass leads us to conclude that spent lead sand filter cinders are uniquely associated with mineral processing operations because this waste contains waste components (e.g., lead) that originate from the orebody as a result of direct contact with the mineral values (i.e., lanthanides) being processed. Since the spent lead sand filter cinders are generated after mineral processing begins and are not on the list of 20 wastes, however, they are not Bevill-exempt.

Molycorp personnel recently indicated to us that the waste zinc contaminated with mercury is now being sold off-site as a product for recyclable zinc. If this material is not listed as a hazardous waste, is not a spent material (40 CFR 261.1(c)(1)), and is not over accumulated (40 CFR 261.1(c)(8)), RCRA would define it as a byproduct and not a waste. Since this material may not be a waste, there may be no longer a need for EPA to interpret the Bevill status of this material.

Please be assured that EPA recognizes the difficulties posed by generation and management of these non-exempt waste streams. To address these concerns, it may be possible to evaluate your process to determine whether less toxic or lower volume wastes could be generated, or whether there are recycling opportunities for these wastes. We would be most willing to work with Molycorp to examine pollution prevention and recycling options.

Finally, I want to take this opportunity to clarify some apparent misconceptions about the filter cake generated from the Molycorp mineral processing activities. As my staff indicated to you and Doug McAllister during recent phone conversations, according to 53 FR 37045 (September 23, 1988), mixed wastes are wastes that contain both hazardous waste subject to RCRA and radioactive waste subject to the Atomic Energy Act (AEA). However, while the waste streams generated by Molycorp may be characteristically hazardous and thus subject to RCRA Subtitle C, they do not appear to be subject to AEA because they are not "source material", "special nuclear material", or "byproduct material" (42 U.S.C. 2014). With this clarification in mind, Molycorp may want to conduct a new inquiry into the availability of off-site recycling and disposal options for the existing inventory of drummed filter cake.

It should also be noted that while the lead/iron residues may be subject to California land disposal restrictions of 22 CCR 66261.21, the Agency has not yet developed treatment standards

under EPA's Land Disposal Restrictions program--that is, EPA has not yet restricted land disposal of mineral processing hazardous wastes according to 55 FR 22528 (June 1, 1990). Thus, company concerns regarding RCRA limitations on disposal of the filter cake as early as May 8, 1992, may be alleviated.

We hope this letter adequately explains why our previous conclusions continue to be valid for the waste streams at the Mountain Pass facility. Please feel free to contact Mr. Matthew Straus, Director, Waste Management Division at (703) 308-8414 if you have any further questions or if Molycorp would like our assistance in pursuing pollution prevention and recycling options.

Sincerely,

Sylvia K. Lowrance, Director
Office of Solid Waste

Enclosure

cc: Paula Rasmussen
Daniel McGovern

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Enclosure

MAY 14 1991

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Ms. Paula Rasmussen, Chief
Surveillance and Enforcement Branch
State of California - Department of Health Services
245 West Broadway, Suite 350
Long Beach, California 90802

Dear Ms. Rasmussen:

In response to your inquiry, dated March 21, 1991, the U.S. Environmental Protection Agency (EPA) Headquarters has analyzed the information provided by the California Department of Health Services (DHS) pertaining to the Molycorp Mountain Pass lanthanides plant and its solid wastes. We believe that all of the wastes identified in your letter are either mineral processing wastes that are not exempt from RCRA Subtitle C or are wastes that are not uniquely associated with mining or mineral processing. Consequently, these materials would be subject to regulation as RCRA hazardous wastes if they exhibit one or more of the characteristics of hazardous waste (e.g., toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP)). The basis for our opinion is outlined in the following paragraphs.

On September 1, 1989, EPA published a final rule (attached) establishing a formal regulatory distinction between wastes generated by ore and mineral extraction and beneficiation operations (all such wastes are exempt from Subtitle C), and wastes generated by ore and mineral processing operations (of which only 20 specific mineral processing wastes remain exempt) (54 FR 36592). Included in this final rule is a definition of eligible beneficiation operations, as well as an extensive discussion in the preamble of how this definition had been developed and how it had been and was to be applied by the Agency. Throughout this discussion, EPA stated that the distinctions between beneficiation and processing were not always immediately obvious or clear, and that decisions requiring application of the definitions presented in the rule had to be made in keeping with the spirit of the Mining Waste Exclusion and in accordance with common sense (see, for example, discussions on pp. 36618-9). In addition, the Agency made it clear in this notice that the sequences of steps may be a pertinent factor. For example, operations that might otherwise be considered beneficiation, but that follow an initial mineral processing step in a facility's production sequence, would be considered processing operations. Therefore, wastes from such operations would be considered mineral processing wastes.

With regard to the specific distinctions between beneficiation and processing operations, EPA stated that the principal difference between the two is that while both types of operations may involve the use of certain agents (e.g., heat and/or acid) to enhance the qualities of an ore or mineral, beneficiation operations, in general, do not fundamentally alter the physical structure of the mineral feedstock. That is the wastes that leave the operation generally resemble the minerals that entered the operation (are "earthen in character"). In contrast, mineral processing operations often destroy the physical structure of the mineral feedstock (e.g., through fusion or acid digestion) and generate wastes that bear little resemblance to the materials entering the operation.

With these analytical guidelines in mind, EPA reviewed the flow diagrams and other information submitted by Molycorp through your department to determine where beneficiation ended and processing began. We make the following observations: 1) the second "leaching" step in the operation appears to more closely resemble acid digestion (a mineral processing operation) than it does a conventional leaching (beneficiation) process; 2) the resulting waste is not generated in large quantities, is not earthen in character, and appears to contain very high concentrations of toxic heavy metals, i.e., is not high volume and low hazard (the principal distinguishing characteristics of true special wastes); and 3) the wastes are currently managed on-site in exactly the same manner as are many other hazardous wastes generated at typical industrial facilities.

Therefore, EPA views the preliminary judgment made by California DHS as accurate and fully supportable, although our rationale for one waste, lead sand filter cinders, differs somewhat. None of the wastes in question are exempt. Therefore, they are subject to regulation as hazardous wastes if they exhibit one or more of the characteristics of hazardous waste. The removal of the mining waste exclusion for these wastes is already effective in states such as California where EPA continues to operate the Subtitle C program.

In Attachment 3 to your March 21, 1991 letter, you listed eight specific wastestreams generated at the Molycorp facility for which you needed a status determination. For clarity, I will respond with the Agency's opinion for each individual waste.

1. <u>Pinion Gear Grease</u>

   Because this waste is commonly generated at many types of industrial facilities, this waste is not uniquely associated with mineral extraction, beneficiation, or processing; therefore, it is not a mining or mineral processing waste. The rationale presented in your March 21, 1991, letter concerning this decision is correct.

2. Iron/Lead Mixture Filter Cake,

3. Lead Filter Cake, and

4. Iron Filter Cake

These are mineral processing wastes. As such they are not exempt from RCRA Subtitle C regulation, because they are not among the twenty temporarily exempt mineral processing wastes, but are instead low-volume wastes removed from the Bevill exemption by the September 1, 1989, Final Rule.

5. Lead Backwash Sludge,

This is not an exempt mining or mineral processing waste.

6. Lead Sand Filter Cinders,

Contrary to your March 21, 1991, letter, this is not a mining or mineral processing waste, since it is not uniquely associated with mineral extraction, beneficiation, or processing. The use of sand filters is not unique to mining.

7. Waste Zinc Contaminated with Mercury

This is a mineral processing waste. As such it is not exempt from RCRA Subtitle C regulation, because it is not among the twenty temporarily exempt mineral processing wastes, but is instead a low-volume waste removed from the Bevill exemption by the September 1, 1989, Final Rule.

8. SX-Crud.

Spilled solvent cleaned up from the floor of the chemical plant is not uniquely associated with mineral extraction, beneficiation, or processing; therefore it is not a mining or mineral processing waste, as you noted.

Waste cleaned out of solvent extraction units is a mineral processing waste. As such it is not exempt from RCRA Subtitle C regulation, because it is a low-volume mineral processing waste removed from the Bevill exemption by the September 1, 1989, Final Rule.

If you have further questions concerning this matter, please contact Bob Hall or Bob Tonetti at 703-308-8412 and 703-308-8424, respectively.

Sincerely,

Sylvia K. Lowrance
Director
Office of Solid Waste

Attachment

cc: Rich Vaille
U.S. EPA, Region 9
MS H-2
75 Hawthorne Street
San Francisco, California 94105

George Wilson
U.S. EPA, Region 9
MS H-3-4
75 Hawthorne Street
San Francisco, California 94105

Amy Sokolov
U.S. EPA, Region 9
MS H-23
75 Hawthorne Street
San Francisco, California 94105

[illegible] West 5th Street, P. O. Box [illegible]
Los Angeles, California 90051
Telephone (213) 977-6191

UNOCAL 76

November 14, 1991

Mark A. Smith
Attorney

Ms. Sylvia K. Lowrance
Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Mr. Daniel W. McGovern
Regional Administrator
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Re: Request for Reconsideration of Waste Stream Status

Dear Ms. Lowrance and Mr. McGovern:

Molycorp, Inc., a subsidiary of Unocal, (Molycorp) hereby requests the U.S. Environmental Protection Agency (EPA) to reconsider the position expressed in a letter to Ms. Paula Rasmussen of the State of California Department of Health Services dated May 14, 1991 concerning the iron-lead precipitate, lead backwash sludge and SX-crud, wastes from the company's Mountain Pass California facility. Molycorp respectfully requests that, based upon additional information provided by the company, EPA properly classify these wastes as beneficiation, not processing wastes under the Agency's regulations implementing the Resource Conservation and Recovery Act (RCRA), 40 C.F.R. § 261.4(b)(7).

In connection with a Corrective Action Order and Complaint for Penalty issued to Molycorp on May 23, 1991, the State of California Department of Health Services, Toxic Substances Control Program is taking the position that the above-mentioned wastes are hazardous wastes subject to RCRA Subtitle C regulation. The state's position is based on EPA's May 14, 1991 letter.

Molycorp respectfully disagrees with this interpretation. A careful analysis of the Mountain Pass

facility's operations and the subject wastes in light of EPA's 1985 Report to Congress on extraction and beneficiation wastes and the Agency's rulemakings interpreting the scope of the "Bevill Amendment" to RCRA leads to the conclusion that the waste streams are beneficiation and not processing waste streams.

The wastes are uniquely associated with the mining industry, containing the same metals that are found in the original mined ore. The wastes are earthen in character, closely resembling the material entering the production process. The operational steps are activities identified by EPA in its rulemakings and Report to Congress as beneficiation activities. Finally, the classification of these wastes as beneficiation wastes comports with common sense. This is particularly true of the iron-lead precipitate wastes that are indistinguishable from the lead and iron constituents of the mill tailings that are beneficiation wastes and that have received a nonhazardous classification from the State of California.

Molycorp will cooperate with EPA to the fullest extent necessary for a proper waste determination to be made. The company is prepared on short notice to host a site visit for EPA personnel. Detailed process flow diagrams and descriptions of the chemical and physical processes that occur at the plant have been provided to EPA Headquarters staff. We request that a determination based on accurate technical information be made as soon as possible in light of the State of California's pending corrective action order.

Your attention to this matter is greatly appreciated.

Sincerely,

Mark A. Smith

MAS/db
Enclosures